Unreal Engine's Realistic War First-Third Person Shooting Game: Fallen Heroes

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Abstract— Research has shown that there is a connection between first-person and third-party shooter video games and higher mental flexibility. People in such games were found to require a far lower response time to move between difficult tasks, partly because they require rapid reactions to quickly moving graphics by building a responsive mindset when playing FPS or TPS. The successful design, attractive visuals and models of both the FPS and TPS games will provide you with the best experience in playing the game. The FPS and TPS games are a kind of 3D video game that has been a popular day in the field of gaming. The game is a kind of 3D video game. Combat and action centered history are the key design aspect of this style of game. This game is also a role player, as the player has to play from the main player's point of view.

Keywords— Frist-Third Person Shooting Game, Unreal Engine, Game Development.

1. INTRODUCTION

Computer games are one of the most popular entertainment formats in the world. The Global Game market generated $175.8 billion in revenues in 2021. At the end of 2023, the gaming market will continue to rise and approach 200+ billion dollars. It is anticipated that the Esports sector will expand fast after Covid 19 and that around 300 million Esports visitors globally will be at the end of 2023 [1]. Researchers and consumers were given valuable information on the components of games in studies. Video game information, however, develops frequently with creators creating new goods and increasing consumer desire for more and better games [2]. Due to the rapid growth of the internet and the digital content market, games are rapidly interconnected into all life. Meanwhile, for many individuals, it is one of the major fun and pleasure [3].

Choosing a first-person shooting (FPS) and a third person shooting (TPS) is one of the most unique qualities of the game. FPS games provide virtual virtualization, while the Third Person shooting games provide both a position of today and people who are comrades or enemies[4]–[6]. The games are available for the first-person shooting players. Strategy games can be more operationally and strategically learned sometimes, while FPS/TPS games are often more tactically useful [7]. Games can be used as a support tool in order to complement traditional teaching methods in order to increase learning skills and to teach other skills, including rules, problem solution, interaction, the abilities to think critically, creativity, collaboration and good sport [8].

Both camera options in Fallen Heroes interact quite efficiently with players. During the play, the player can change the camera settings. Video game streaming has become quite popular in recent years and streamers are looking for a form of the game that features high-quality graphics, voice and less latency so that more views are provided[1], [9], [10].Latency Delay is the delay between the input of a player and the audio or visual output of the game. The major reason for this game is to produce such a sort of game in which the player may interact with high-grade Video visuals and speech and lower the latency rate in order to quickly respond to our character and video frames [6].

The map plays a crucial role in each shooting game. We draw our map in this game according to our motive for the game. Our motive for the game is to clear an army guy from a little town where the enemies live. Therefore, our map contains desert, mountains, rivers and Houses[11]. Contrary to popular conviction of intellectually lazy and sedative playing of video games, it turns out to develop a variety of cognitive skills through play [12].

2. RELATED WORK

This section provides references to related work with brief descriptions of findings in several relevant areas: First/Third person and the Mechanics and AI in Shooting Game.

2.1 First/Third person and the Mechanics

Now, what's the game's mechanics? It defines the qualities of how the user interacts with the game. For instance, in the game of shooting the opponent was targeted by the player and shot

it to eradicate it. Take a look at the threats or listen to covert discussions. These are the mechanics' components. Table 1 shows. Here are the elements they use for mechanical purposes. It is a system in which players participate in regulation and the prevailing culture, the player interacts with the system and the artificially manufactured conflict, the game itself [13].

Table 1: Elements of Game mechanics

4 Elements of Game Mechanics		
Element	**Definiton**	**Examples**
Quantity	Mechanics that can be represented as a number.	• Resource: Health, mana, energy, rage • Currency: Gold, zeny, bells • Abstract: Time
Spatial	Mechanics that affect space.	• World: Position and rotation of objects • Tangible: Collision, characters, props • Intangible: Inventory, storage
State	Mechanics that apply additional rules.	• Player: Grounded, airborne, swimming, alive, dead • Game: Victory, lobby, loading • Object: On, off, open, closed
Action	Mechanics that drive change.	• Resource: Health regen, shooting ammo • World: Running, jumping, teleporting • Object: Unlock door, open chest

As our [fallen heroes] game is based on a single player tale game for Frist and third person action. Let's distinguish it. A shooter (FPS) of the first person is a kind of shooting game that allows the character to be seen, experienced and checked by an actual person in 3D, in the first-person mode, you have the vision of protagonist's eyes, Modern first-person shooter (FPS) games run in real time and are carried out in comprehensive and complex three-dimensional worlds[14]. as depicted in figure 1.

Figure 1: First-person view

In third-person shooters [TPS], the player may see the character in third-person views, where the camera is placed behind the character's eyes or the complete avatar as illustrated in figure 2.

Figure 2: Third person view

2.2 AI in Shooting Game

You witness NPC, your opponents and your villain in the story mode game. You may view the selection of difficulty levels (easy, medium and hard) against bots whenever you start your new game. Bots are the random computer-operated that we name Artificial Intelligence (AI). They are taught in the data center, whereby the user determines the bots' data accordingly. It could be an adversary, a buddy, or an NPC. They randomly move and when you see the user, the spawn is activated, the AI bot begins to converse, shoot, or engage with the player.

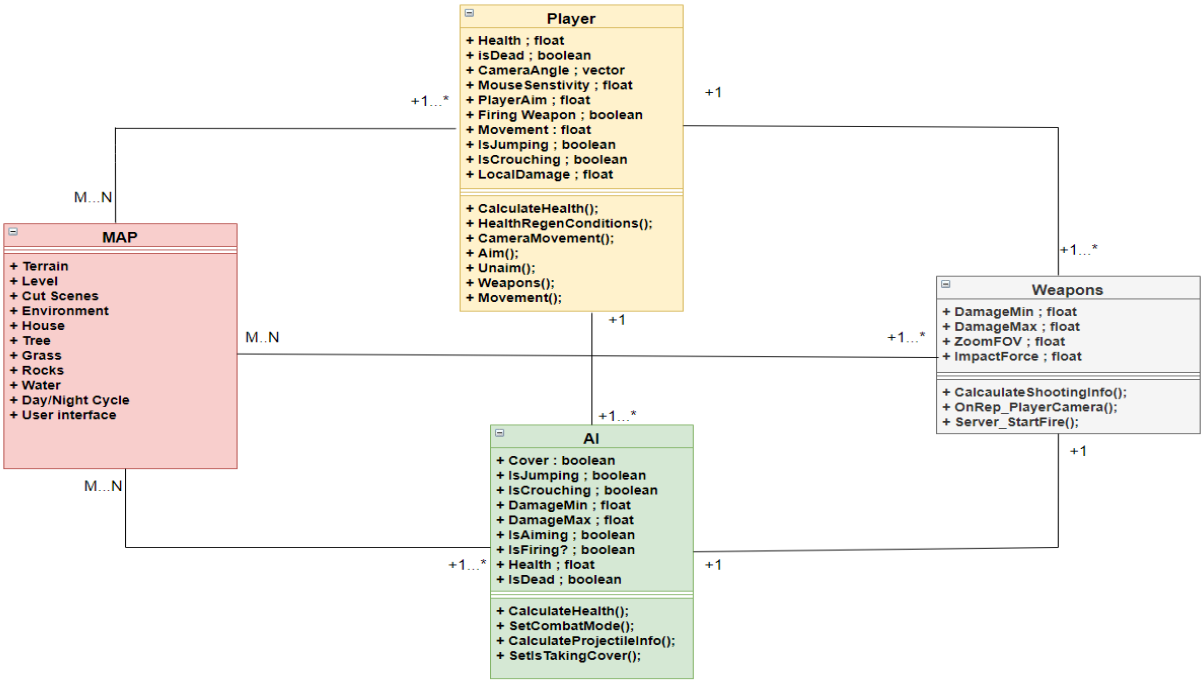

Figure 3 Game World Data

Figure 3, We've given the duty of the AI bot as coverage, status (dead/alive), and firing as you can see in the AI section. With these responsibilities, the computer controls the NPC.

2.3 Existing Systems

2.3.1 Green Force: Zombies Unkilled:**Green Force: Zombies Unkilled** delivers the FPS game and Zombie's shooting a unique meeting without settling down on the discretionary portions of each type. The game has a story mode with different problem-level missions. If you are only in a state of temperament to carry out zombies, browse the Survival or Turbo guidelines for a training course endlessly. Two guides can also be rehearsed in Endurance and Turbo mode. Super mode isn't exactly the same as Survival, the Zombies continue their repair and you don't have the chance. The game was released in 2013 by Pakistani Peshawar Students only drawback of this game is that is it outdated in graphics and old mechanics.

2.3.2 Call of Duty: Modern Warfare 2:Call of Duty: Modern Warfare 2 is Call of Duty's sixth game series, and Infinity Ward's fourth game. Activision for PC, PlayStation 3 and Xbox 360 have published the game. The game was launched on 10 November 2009.

Table No 2: Comparative Analysis

Features	**Green Force Unkilled [1]**	**Call of Duty Modern Warfare 2 [2]**	**Fallen Heroes**
Third Person and First-Person Mode	✘	✘	✓
Graphics Quality Ultra	✘	✘	✓
Story Mode	✓	✓	✓
DirectX 11	✘	✘	✓
Scalability	✘	✓	✓
Unreal	✘	✘	✓
Voice Over Urdu	✘	✘	✓
Shader Model 5.0 / 4.0	✓	✓	✓
Single Player	✓	✓	✓

As shown in Table No 2, The FPS and TPS mode are not present in Green Force Unkilled and Call of duty modern warface2 but in fallen hero's fps and TPS mode are included. The Graphics quality ultra are not present in green force and call of duty modern warfare 2 but in Fallen heroes the graphics quality is present. The DirectX (API) is present in fallen heroes and it is also an advance version compare to other two games. The scalability in fallen heroes is better than the both other games. Major difference is the voice line and engine which are used in fallen heroes, as game is made in Pakistan its local language Urdu is used in it. Unreal Engine is used to create this game which if more advance and capable of achieving all the features.

3. METHODOLOGY

Research methodology is a set of methods or strategies for locating, selecting, processing and analyzing information on a subject. Methodology in Fallen Heroes is given below.

3.1 Initializing and downloading

The editor which is used in this game is Unreal Engine 4 which is provided by Epic games, Epic Games' Unreal Engine 4 is a gaming engine that debuted with the first-person shooter Unreal in 1998. It's used in high-resolution PC and console games, and it's also popular in filming and other business applications. We can download the Epic Games application through its official website from which we can install Unreal Engine 4 for free of cost. Epic games work as a launcher and as the storage place for the Unreal Engine 4 and its packages.

3.2 Creating Your Project and Importing Assets

Create New project from your Epic games account for Unreal Engine 4, give your game title to it and start working on it. We can import lots of assets according to our need for the game designing and mechanism. The asset is Characters, objects, sound effects, maps, environments, and other elements of a video game. Epic Games has made $17 million worth of material from Paragon, the company's high-end action MOBA, available to all Unreal Engine 4 designers for free. The assets, which cost over $17 million to create, include 39 AAA characters more than 1,500 Paragon scenery components. In this game, we have imported different assets as following: TPS Multiplayer Pack, Western Desert Town, Photorealistic Landscape Pack 3, Mission Component, Soul: cave, Paragon: Twinblast, Log cabin, good sky, FPS Weapon Bundle, Environment Set and Brushify - Environment Shaders Pack.

3.3 Designing and Testing

Terrain, this is the undulating table on which our playing pieces are placed. It's the sandbox we play in and the garden we develop in. To be considered, consumed, compressed and molded. It is the heroic, unsung substratum of all games, and so much more. Taking the idea from which, we want our location to be. We start creating mountains placing rock and tress according to the theme, adding rivers to give the natural look with help of photorealistic landscape assets.

Houses play an important role as they provide us with an element that will be interacted by our character. Adding houses to the location according to your idea of games, make sure to add all the elements inside of the house to give the complete look of a house, Western Desert Town assets help us with the houses and their elements. When your location is done with all the elements, you need Directional lights and weather to give you the feel of the environment. Direction lights are big, remote sources from a place outside the game world. They can be used to replicate the sun or moon in a realistic scene. Adjust the lighting according to your theme, add weather/sky with the help of Good Sky asset to give the natural look into it. As we added rain in our location with the help of particles added from the asset Soul: cave which has its sound integrated within. Give you feels as it’s raining in real life.

When your environment is ready it’s time to add your main character the protagonist of your game by the help of the TPS Multiplayer asset we can use the dummy of our charac-

ter in which all its animation and movement blueprints are already present, which can be change or edit by the editor according to what they want in their game, mapping movement keys to the character like **W A S D Spacebar** to the player for movement. As our Character is ready it needs skin to look more like a human being and attractive for that we use Paragon: Twinblast asset skin on our dummy character and edit it according to our requirement through retarget manager, by which all functions of dummy work on the added skin.

As the character is added we add our enemies according to our game through TPS multiplayer in which we get AI characters with the same processes we add skin on it also so that they look and work as enemies, who are roaming like real human beings.The mission is the important part of the story game, as you progress through in-game you have to complete objectives/missions to go further in-game or to end the game. We have achieved through Mission Component asset by which we can add mission to the game and customized it as our game with its blueprint coding backend.As we are now about to start the game Camera plays an important role as are you playing first person or third person mode to achieve that we have placed three different types of camera angles on to the character movement and mapped the bind key on which they can switch so that players can experience both modes easily.

Weapons are needed to kill the enemies. The animation, mechanic and the movement of weapons is needed in-game to feel like real weapons. Which we added by the TPS multiplayer Pack asset and added skin of different weapons by FPS Weapon Bundle asset. Added different sounds ac-cording to the weapons. HUD is also added to the game through TPS multiplayer pack to gives the pleasing sight for the user to play the game like Health Bar, weapons bullet counter and mission progress bar.Sound gives to feels and chills, adding sound can be difficult as we have to use non-copyright music so that we don't get a copyright for using it. Syncing sound according to the missions and environment to get the tune of the game.Saving and Loading is also part of the game where users can save the game on different check points and load the game from there which is achieved by the Mission Component blueprint.Cinematics is added to the game by the Cine Camera Actor by which we can record the scenes according to the game we needed through add level sequence with the different camera cuts to make one proper shot. In the last few centuries, new narrative media like film cameras and animation computers have developed rapidly advancing technology and the development of art philosophy [15].

In the end, the Splash screen is designed and add to the game through an unreal engine that gives the option to make your own splash screen according to your game in which we have options like **NEW GAME, LOAD GAME, SAVE GAME, OP-TIONS and CONTROLS**.When the game is completed, we check for bugs and other things that are interfering the game from running by prototyping as a beta version and alpha version of the game to achieve that.

3.3 SDLC Model (Prototype Model)

The model is one of the most common development models for life cycle software (SDLC models). This method is used when customers are not aware of the specific needs of the project. This methodology initially produces, tests and refines an enduser feedback prototype, which will provide the basis for the development of the ultimate product until an appro-

priate prototype is achieved. We work on our projects in this respect, as seen in Figure 4, our customer was our supervisor here.

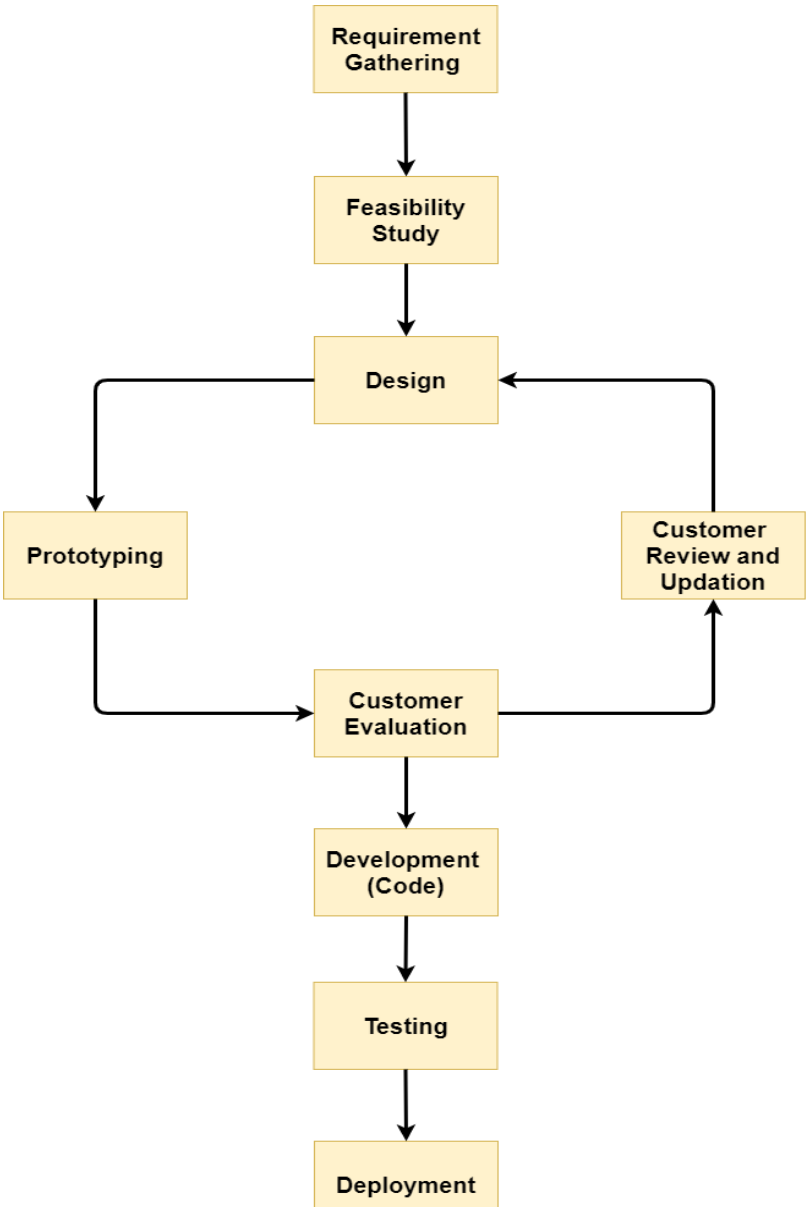

Figure 4: Software Development Life Cycle Model

4. RESULTS

Figures 5,6,7 show the location 1,2,3 of our game where we can see that terrain and houses are well placed together with the weather, sky, lighting and surroundings.

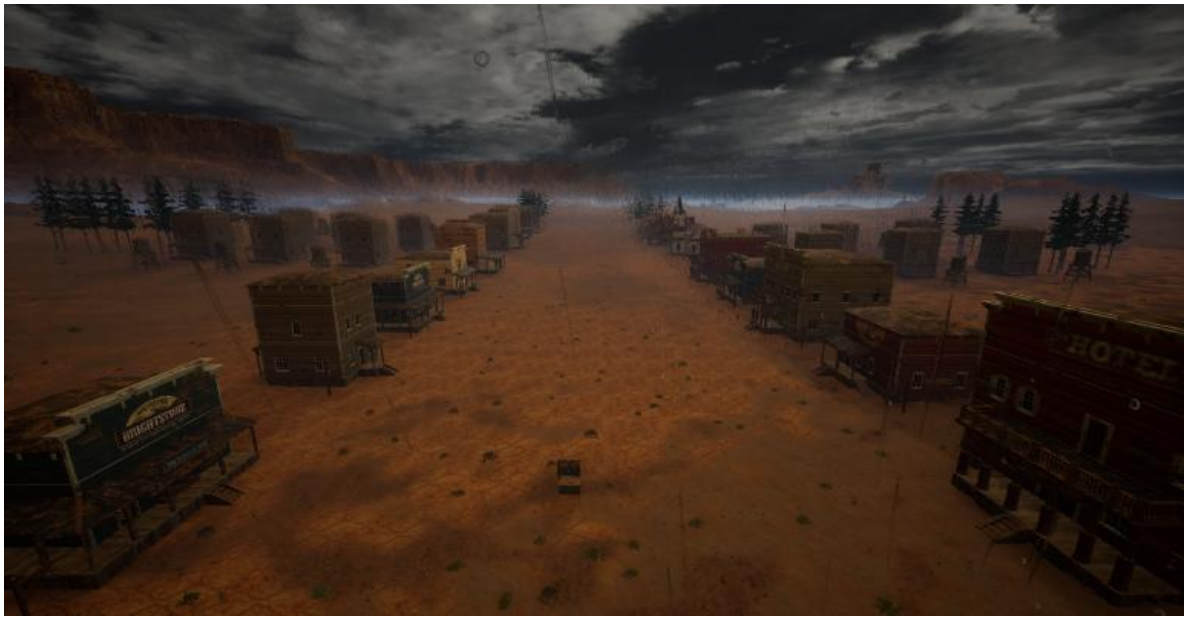

Figure 5: Location 1

Figure 6: Location 2

Figure 7: Location 3

Figure 8 shows the river and the mountains of the game according to our game theme and in figure 9 we can see the raining particles making the rain so beautifully.

Figure 8: River design and mapping

Figure 9: Raining animation

Figure 10 shows the interior of the house and the lighting inside, It shows off well the wooden floor looks like, in figure 11 we can see our character which is ready to play by our user.

Figure 10: Inside House Structure and design.

Figure 11: Main Game Character

Figure 12 shows how we set our camera angles for the game as shown in figures 1 and 2 both Frist and third person.

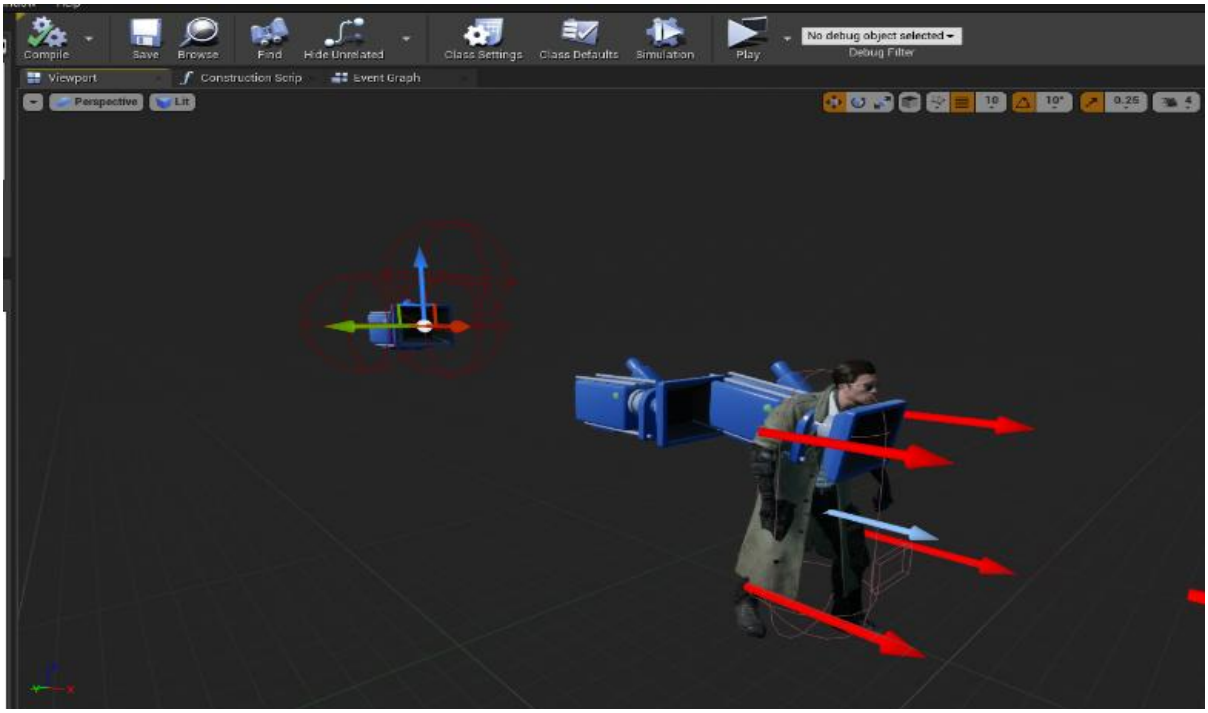

Figure 12: Camera Third/Person

5. Conclusion

First Person Shooter (FPS) and Third Person Shooter (TPS) i.e., shooting games that are signed with a tool developed by Unreal Engine Game. The Epic Games Cross-Platform game Engine is mostly used for development of video gaming and simulations for computers.

The Maps are produced with the mixer tool. The train in the game is. The best experience in playing Story Telling is provided by this project.The results of this project will make you desire to play this game, which includes amazing visuals and models.

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